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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/116,425	07/15/1998	ROBERT J. PIECHOWIAK	M-2760-3P	2543
24251	7590	06/16/2004		
SKJERVEN MORRILL LLP 25 METRO DRIVE SUITE 700 SAN JOSE, CA 95110			EXAMINER CHERUBIN, YVESTE GILBERTE	
			ART UNIT 3713	PAPER NUMBER

DATE MAILED: 06/16/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

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TECHNOLOGY CENTER R3700

Office Action Summary

Application No.

09/116,425

Applicant(s)

PIECHOWIAK ET AL.

Examiner

Yveste G. Cherubin

Art Unit

3713

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 February 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-4 and 6-28 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 24-28 is/are allowed.
- 6) ☒ Claim(s) 1-4 and 6-16 is/are rejected.
- 7) ☒ Claim(s) 17-23 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. This office action is in response to the Amendment filed February 27, 2004.

Priority

2. This application repeats a substantial portion of prior Application No. 08/727,805, now Patent No. 6,012,982 filed October 7, 1996, and adds and claims additional disclosure not presented in the prior application. The additional disclosure of "generating a first game result (randomly selected) and a bonus game result (non-randomly selected) displaying on 1 (one) display" is being given the filing date of July 15, 1998 since it was not presented in the parent application cited above. With that said, the prior art to DeMar et al., US Patent No. 6,315,660 is being considered as prior art since it carries a filing date of March 24, 1998.

Claim Objection

3. Claims 17, 19 are objected to because of the following informalities:

Page 5, claim 17, line 1, the examiner is suggesting to replace the word "acts" between --comprising the- and --of-- by 'steps'.

Page 6, claim 19, line 1, the word "of" needs to be added between --method--and --claim--.

Page 6, claim 19, line 1, the letter "k" after the comma needs to be deleted.

Appropriate correction is required.

Non-Final Rejection

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-4, 6-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Claypole et al. (GB No 2,262,642) in view of DeMar et al. (US Patent No. 6,315,660).

As per claims 1, 4, Claypole discloses a fruit machine operable in a first mode and a second mode, see abstract. The first game, which is a reel type game generates the game results in a random fashion and upon meeting certain predetermined criteria, a second game, which is a skill type game is initiated in the form of a quiz game or video game. However, Claypole uses two (2) displays (3, 15) to generate game results of the first game and the second game, respectively, and fails to disclose using a single display to generate both results. DeMar, on the other hand, teaches a gaming machine which includes a processor operable in a basic mode in the form of a reel type game and a bonus mode in the form of a board game, 1:32-38, 5:47-48. The first game generates its game results on video display (12), see Fig 4, 5:26-30 and upon meeting certain predetermined criteria, the video reels of the basic game are replaced with a token selection screen offering a selection of board game tokens, 11:3-6 on the same video display (12), see Fig 5. As shown, DeMar is cited to disclose generating the first game results and the bonus game results on the same video display (12) so as to require no additional hardware. It would have been obvious to one of ordinary skill in

Art Unit: 3713

the art at the time the invention was made to provide one display as taught by DeMar into the Claypole type device in order to minimize the cost and the size of the gaming device.

Regarding claim 2, DeMar discloses the bonus game result being a bonus award for achieving a particular first game result, 10:51-56.

Regarding claims 3, 6, DeMar discloses payout rate for various winning combinations of the basic game, 9:14-17, 10:41-49 and further discloses awarding the player for various outcomes on the board game (MONOPOLY). As shown, DeMar discloses the bonus game result identifying an additional award paid to a player.

Regarding claims 7, 12, Claypole discloses using card symbols, page 13, line 17.

Regarding claims 8, 13 Claypole as well as DeMar discloses using symbols on a video reel, 5:27.

Regarding claims 9-11, 14-16, DeMar discloses the bonus game capable of being any type of game, similar or completely different from the basic game, 1:32-39. Having the bonus game result comprising indicia, such as letters, numbers, that fills a grid pattern would have been a matter of design choice. Doing so would allow player to play a different type of game, therefore presenting a new challenging game to players.

Allowable Subject Matter

5. Claims 24-28 are allowed over the prior art of record.

Claims 17-23 would be allowable when the Applicants make corrections to the objected claims 17 and 19 set forth above.

Prior Arts

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.
 - a. GB Patent No. 2,072,395 to Kennedy et al., which teach gaming or amusement machine.

Response to Arguments

7. Applicant's arguments with respect to claims 1-4, 6-28 have been considered but are moot in view of the new ground(s) of rejection. See above.

Conclusion

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Yveste G. Cherubin whose telephone number is (703) 306-3027. The examiner can normally be reached on 9:30 - 6:00.

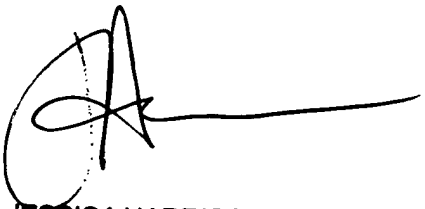
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, A. Wellington can be reached on (703) 308-1327. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 3713

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

ygc

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JESSICA HARRISON
PRIMARY EXAMINER

Notice of References Cited

Application/Control No.

09/116,425

Applicant(s)/Patent Under
Reexamination
PIECHOWIAK ET AL.

Examiner

Yveste G. Cherubin

Art Unit

3713

Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	Classification
	A	US-			
	B	US-			
	C	US-			
	D	US-			
	E	US-			
	F	US-			
	G	US-			
	H	US-			
	I	US-			
	J	US-			
	K	US-			
	L	US-			
	M	US-			

FOREIGN PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	Classification
	N	GB - 2,262,642	06-1993	United Kingdom	Claypole et al.	G 07F 17/34
	O	GB - 2,072,395	09-1981	United Kingdom	Kennedy	G 07F 17/34
	P					
	Q					
	R					
	S					
	T					

NON-PATENT DOCUMENTS

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
	U	
	V	
	W	
	X	

*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.

USPTO TO PROVIDE ELECTRONIC ACCESS TO CITED U.S. PATENT REFERENCES WITH OFFICE ACTIONS AND CEASE SUPPLYING PAPER COPIES

In support of its 21st Century Strategic Plan goal of increased patent e-Government, beginning in June 2004, the United States Patent and Trademark Office (Office or USPTO) will begin the phase-in of its E-Patent Reference program and hence will: (1) **provide downloading capability of the U.S. patents and U.S. patent application publications cited in Office actions** via the E-Patent Reference feature of the Office's Patent Application Information Retrieval (PAIR) system; and (2) **cease mailing paper copies of U.S. patents and U.S. patent application publications with Office actions** (in applications and during reexamination proceedings) except for citations made during the international stage of an international application under the Patent Cooperation Treaty (PCT). In order to use the new E-Patent Reference feature applicants must: (1) obtain a digital certificate and software from the Office; (2) obtain a customer number from the Office; and (3) properly associate patent applications with the customer number. Alternatively, copies of all U.S. patents and patent application publications can be accessed without a digital certificate from the USPTO web site, from the USPTO Office of Public Records, and from commercial sources. The Office will continue the practice of supplying paper copies of foreign patent documents and non-patent literature with Office actions. Paper copies of cited references will continue to be provided by the USPTO for international applications during the international stage.

Schedule

June 2004	TCs 1600, 1700, 2800 and 2900
July 2004	TCs 3600 and 3700
August 2004	TCs 2100 and 2600

All U.S. patents and U.S. patent application publications are available on the USPTO web site. However, a simple system for downloading the cited U.S. patents and patent application publications has been established for applicants, called the E-Patent Reference system. As E-Patent Reference and Private PAIR require participating applicants to have a customer number, retrieval software and a digital certificate, all applicants are strongly encouraged to contact the Patent Electronic Business Center to acquire these items. To be ready to use this system by June 1, 2004, contact the Patent EBC as soon as possible by phone at 866-217-9197 (toll-free), 703-305-3028 or 703-308-6845 or electronically via the Internet at ebc@uspto.gov.

Other Options

The E-Patent Reference function requires the applicant to use the secure Private PAIR system, which establishes confidential communications with the applicant. Applicants using this facility must receive a digital certificate, as described above. Other options for obtaining patents which do not require the digital certificate include the USPTO's free Patents on the Web program (<http://www.uspto.gov/patft/index.html>). The USPTO's Office of Public Records also supplies copies of patents for a fee (<http://ebiz1.uspto.gov/oems25p/index.html>). Commercial sources also provide U.S. patents and patent application publications.

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REFERENCES WITH OFFICE ACTIONS, AND PILOT TO EVALUATE THE
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REFERENCES**

Summary

The United States Patent and Trademark Office (Office or USPTO) plans in the near future to: (1) cease mailing copies of U.S. patents and U.S. patent application publications (US patent references) with Office actions except for citations made during the international stage of an international application under the Patent Cooperation Treaty and those made during reexamination proceedings; and (2) provide electronic access to, with convenient downloading capability of, the US patent references cited in an Office action via the Office's private Patent Application Information Retrieval (PAIR) system which has a new feature called "E-Patent Reference." Before ceasing to provide copies of U.S. patent references with Office actions, the Office shall test the feasibility of the E-Patent Reference feature by conducting a two-month pilot project starting with Office actions mailed after December 1, 2003. The Office shall evaluate the pilot project and publish the results in a notice which will be posted on the Office's web site (www.USPTO.gov) and in the Patent Official Gazette (O.G.). In order to use the new E-Patent Reference feature during the pilot period, or when the Office ceases to send copies of U.S. patent references with Office actions, the applicant must: (1) obtain a digital certificate from the Office; (2) obtain a customer number from the Office, and (3) properly associate applications with the customer number. The pilot project does not involve or affect the current Office practice of supplying paper copies of foreign patent documents and non-patent literature with Office actions. Paper copies of references will continue to be provided by the USPTO for searches and written opinions prepared by the USPTO for international applications during the international stage and for reexamination proceedings.

Description of Pilot Project to Provide Electronic Access to Cited U.S. Patent References

On December 1, 2003, the Office will make available a new feature, E-Patent Reference, in the Office's private PAIR system, to allow more convenient downloading of U.S. patents and U.S. patent application publications. The new feature will allow an authorized user of private PAIR to download some or all of the U.S. patents and U.S. patent application publications cited by an examiner on form PTO-892 in Office actions, as well as U.S. patents and U.S. patent application publications submitted by applicants on form PTO/SB08 (1449) as part of an IDS. The retrieval of some or all of the documents may be performed in one downloading step with the documents encoded as Adobe Portable Document format (.pdf) files, which is an improvement over the current page-by-page retrieval capability from other USPTO systems.

Steps to Use the New E-Patent Reference Feature During the Pilot Project and Thereafter

Access to private PAIR is required to utilize E-Patent Reference. If you don't already have access to private PAIR, the Office urges practitioners, and applicants not represented by a practitioner, to take advantage of the transition period to obtain a no-cost USPTO Public Key Infrastructure (PKI) digital certificate, obtain a USPTO customer number, associate all of their pending and new application filings with their customer number, install no-cost software (supplied by the Office) required to access private PAIR and E-Patent Reference feature, and make appropriate arrangements for Internet access. The full instructions for obtaining a PKI digital certificate are available at the Office's Electronic Business Center (EBC) web page at: <http://www.uspto.gov/ebc/downloads.html>. Note that a notarized signature will be required to obtain a digital certificate.

To get a Customer Number, download and complete the Customer Number Request form, PTO-SB125, at: <http://www.uspto.gov/web/forms/sb0125.pdf>. The completed form can then be transmitted by facsimile to the Electronic Business Center at (703) 308-2840, or mailed to the address on the form. If you are a registered attorney or patent agent, then your registration number must be associated with your customer number. This is accomplished by adding your registration number to the Customer Number Request form. A description of associating a customer number with an application is described at the EBC web page at: http://www.uspto.gov/ebc/registration_pair.html.

The E-Patent Reference feature will be accessed using a new button on the private PAIR screen. Ordinarily all of the cited U.S. patent and U.S. patent application publication references will be available over the Internet using the Office's new E-Patent Reference feature. The size of the references to be downloaded will be displayed by E-Patent Reference so the download time can be estimated. Applicants and registered practitioners can select to download all of the references or any combination of cited references. Selected references will be downloaded as complete documents as Adobe Portable Document Format (.pdf) files. For a limited period of time, the USPTO will include a copy of this notice with Office actions to encourage applicants to use this new feature and, if needed, to take the steps outlined above in order to be able to utilize this new feature during the pilot and thereafter.

During the two-month pilot, the Office will evaluate the stability and capacity of the E-Patent Reference feature to reliably provide electronic access to cited U.S. patent and U.S. patent application publication references. While copies of U.S. patent and U.S. patent application publication references cited by examiners will continue to be mailed with Office actions during the pilot project, applicants are encouraged to use the private PAIR and the E-Patent Reference feature to electronically access and download cited U.S. patent and U.S. patent application publication references so the Office will be able to objectively evaluate its performance. The public is encouraged to submit comments to the Office on the usability and performance of the E-Patent Reference feature during the pilot. Further, during the pilot period registered practitioners, and applicants not represented by a practitioner, are encouraged to experiment with the feature, develop a proficiency in using the feature, and establish new internal processes for using the new access to the cited U.S. patents and U.S. patent application publications to prepare for the anticipated cessation of the current Office practice of supplying copies of such cited

references. The Office plans to continue to provide access to the E-Patent Reference feature during its evaluation of the pilot.

Comments

Comments concerning the E-Patent Reference feature should be in writing and directed to the Electronic Business Center (EBC) at the USPTO by electronic mail at eReference@uspto.gov or by facsimile to (703) 308-2840. Comments will be posted and made available for public inspection. To ensure that comments are considered in the evaluation of the pilot project, comments should be submitted in writing by January 15, 2004.

Comments with respect to specific applications should be sent to the Technology Centers' customer service centers. Comments concerning digital certificates, customer numbers, and associating customer numbers with applications should be sent to the Electronic Business Center (EBC) at the USPTO by facsimile at (703) 308-2840 or by e-mail at EBC@uspto.gov.

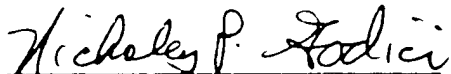
Implementation after Pilot

After the pilot, its evaluation, and publication of a subsequent notice as indicated above, the Office expects to implement its plan to cease mailing paper copies of U.S. patent references cited during examination of non provisional applications on or after February 2, 2004; although copies of cited foreign patent documents, as well as non-patent literature, will still be mailed to the applicant until such time as substantially all applications have been scanned into IFW.

For Further Information Contact

Technical information on the operation of the IFW system can be found on the USPTO website at <http://www.uspto.gov/web/patents/ifw/index.html>. Comments concerning the E-Patent Reference feature and questions concerning the operation of the PAIR system should be directed to the EBC at the USPTO at (866) 217-9197. The EBC may also be contacted by facsimile at (703) 308-2840 or by e-mail at EBC@uspto.gov.

Date. 12/1/03


Nicholas P. Godici
Commissioner for Patents

(12) **UK Patent Application** (19) **GB** (11) **2 262 642 A** (13)
(43) Date of A publication 23.06.1993

(21) Application No 9226433.2

(22) Date of filing 18.12.1992

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(51) INT CL⁴
G07F 17/34

(52) UK CL (Edition L)
G4V VAA V118

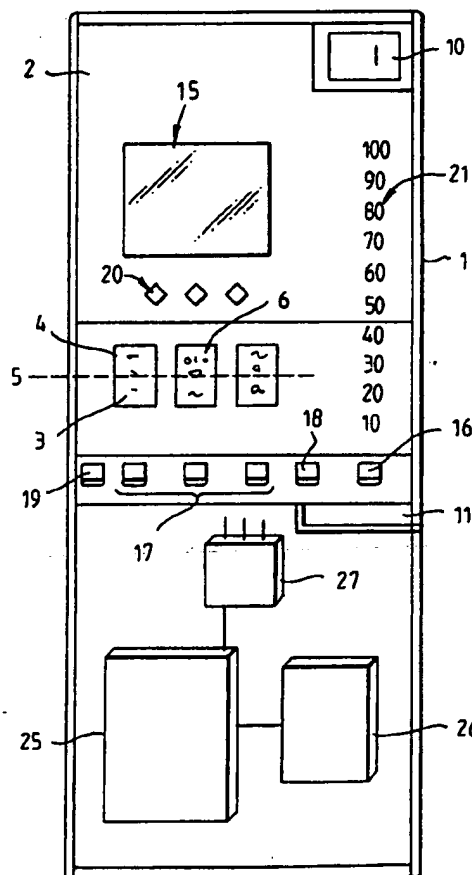
(56) Documents cited
GB 2230373 A GB 2083936 A GB 2072395 A

(58) Field of search
UK CL (Edition L) G4V VAA
INT CL⁴ G07F 17/34

(54) **Game machine**

(57) A game machine of the fruit-machine type has a reels display (3), typically comprising three rotatable reels with fruit symbols, and a video display screen (15) with associated video game controls (20). Elements of a trail system (21) are progressively illuminable by certain outcomes of a game played on the reels. Sufficient advancement of the illuminable trail elements (21) initiates the display of a video game on the screen (15), typically involving an initial choice element followed by a second element which is an interactive game of chance or skill.

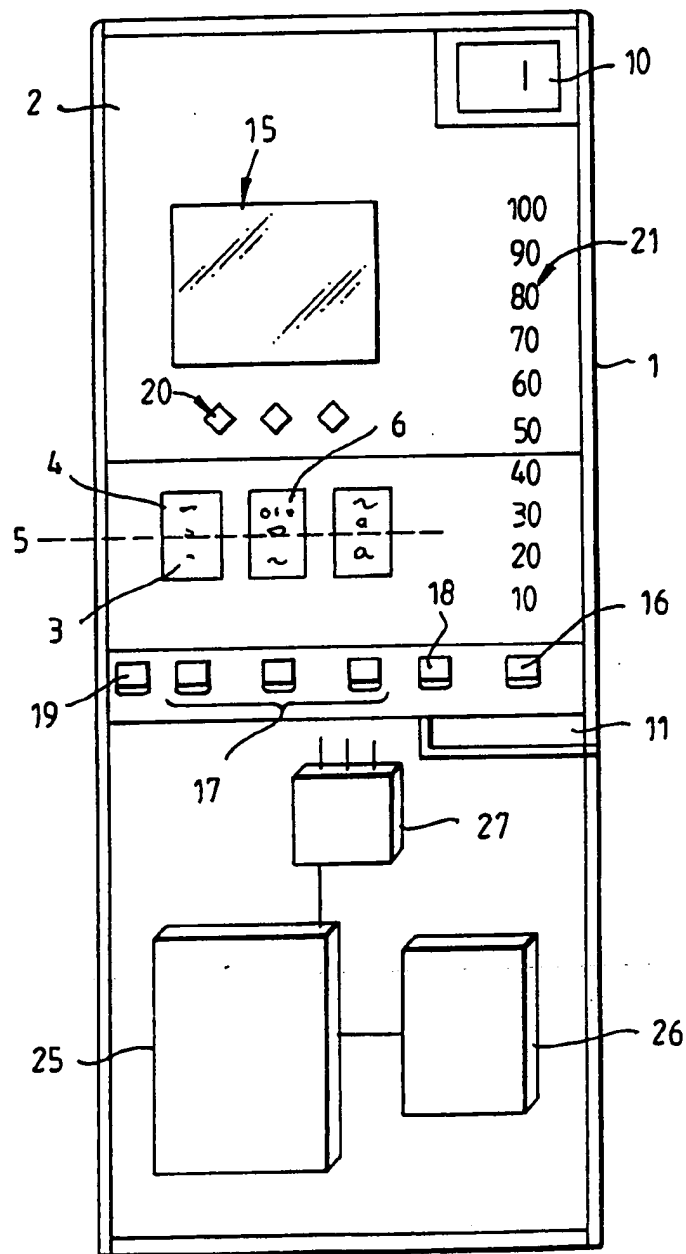
Fig.1



At least one drawing originally filed was informal and the print reproduced here is taken from a later filed formal copy.

GB 2 262 642 A

Fig.1



GAME MACHINES

This invention relates to game machines, in particular fruit machines.

5 Fruit machines are well known. A conventional fruit machine is a gaming or amusement machine having a reel display which consists either of plural rotatable reels with peripheral series of symbols on them, or representations of such reels.

10 The machine generally has means for receiving credits e.g. by insertion of cash, or in the form of tokens or cards. These credits are converted, as soon as they are inserted or more usually by the action of a start button, to play a game on the reel display. In the
15 game the reels rotate and then stop in a random or quasi-random fashion. If the reel display has simulated reels, the symbols shown on these are changed correspondingly in a random or quasi-random fashion, and it is normal to simulate to some extent the spinning of actual reels.
20 After the reel display is run, the combination of symbols appearing along one or more "win lines" determines whether or not some award, such as a prize, pay-out or game advantage, has been won.

 While each conversion of a credit will result in a
25 game on the reel display, it is also conventional to offer at least one and usually several "features". These are further game elements which occur intermittently over

the playing of a number of games on the reel display.

The features have involved enhancement of the basic fruit machine game. For example, when a winning combination of symbols appears on the win line, a

5 "gamble" feature gives the player an opportunity to gamble the basic pay-out, either increasing it or losing it. Another very common feature is the "hold" whereby in some games a player is allowed to keep one or more of the symbols unvaried. In a "nudge" feature, a player is

10 given an opportunity to move reels controllably in a stepwise fashion in an attempt to reach a winning combination. In a "trail" feature, a series of display elements is shown along which the player has a certain chance of progressing as playing of games continues. If

15 the player progresses to the end of the trail, there may be a further prize, feature or jackpot to be won.

GB-A-2192478 describes a fruit machine in which a video display screen or other electronic display replaces the normal machine facade using electric bulbs. The

20 further display can be used to indicate availability of features such as nudges, trails and gambles which previously were indicated using electric bulbs behind a printed glass screen.

GB-A-2117155 describes a separate screen showing a

25 representation of symbols on the reels, to assist the player in using a nudge feature.

GB-A-2072395 describes a video screen addition to a

fruit machine, permitting the playing of video games for certain selected dispositions of the reels.

In the present invention, we are concerned with providing a new kind of gaming or amusement machine. The machine is generally speaking a fruit machine, that is it has a reel display which plays a game for each credit converted as described above. The machine has a further display which is an electronic display screen such as a cathode ray tube. This screen is used to provide various novel features as discussed below.

In one particular aspect, the machine comprises means providing a skill game feature which is played using the further display screen and which constitutes a "feature" with respect to the fruit machine game. The skill game, or various skill games, may be provided as awards depending on the performance of the fruit machine game of the reel display. In particular, opportunity to play a feature on the screen may be achieved by means of a "trail" system or the like, dependent on the fruit machine game. Additionally or alternatively, opportunities to play the skill game may be presented in a random or quasi-random manner over the playing of a number of games of the fruit machine reel display.

In one preferred embodiment, a skill game offered for playing on the screen is a quiz game. For example, when the quiz game feature is offered, the screen can present a question and a multiple choice of answers from

which the player selects, an award or the offering of a further feature being available if the player selects the correct answer using selection means provided on the machine.

5 Another possible skill game is of the "video game" type involving e.g. dexterity and/or timing, for which the electronic screen display is peculiarly well adapted. Moving images on the screen may represent, for example, a shooting game in which the player uses an actuator on the machine to shoot at a target or targets presented on the further display screen. Again, an award or the offer of a further feature can be made dependent on the player's success in the shooting game.

15 The further display screen which we use in the present invention can have any one or more of a number of possible functions. Some of these are now mentioned, as other aspects of the invention.

20 Firstly, chance-governed features of the fruit machine game can be provided on the screen. These might include, for example, the display of gamble or "nudge" features.

We propose some chance-governed game features for display on the screen which are in themselves new, or whose use in such a machine is new.

25 In one feature, an array of identifiable fields is presented on screen, one or more of which can be individually selected by the player e.g. by a

controllable cursor caused to appear on the screen, and a symbol corresponding to each selected field displayed or "uncovered". According to the identity of the uncovered symbol, an award is or is not made, and/or the amount of an award is adjusted.

Preferably the symbol associated with a respective field is varied between one playing of the feature and the next, to make it less predictable.

In another feature, a playing card face selected at random or sequentially is displayed on the screen. A player can then enter a prediction as to the relative value of another card face. The machine store then displays a subsequent card face on the screen; this is compared with the player's prediction and an award (which may be the offer of a further feature) made dependent on the player's accuracy.

The feature may offer a plurality of opportunities for guessing the relative value of subsequent cards in one game, provided that each previous guess is correct.

Means may be provided whereby no subsequently displayed card face is a duplicate of one previously displayed in any one game. This helps the player to guess.

In another new feature, after the fruit machine game has been played but within the conversion of that respective credit, the machine itself generates automatically one or more selected extra outcomes for the

reel display, selected from a restricted field of outcomes corresponding to awards or at least an increased chance of an award compared to the normal fruit machine game. The outcome(s) may be shown on the reel display itself and/or on the further screen display.

5 In another new feature, the machine has a special status mode which it may enter either randomly, quasi-randomly and/or in response to certain selected outcomes of the fruit machine game. In this special status, the machine is receptive to a sequence input by the player using the machine controls, determining an award on the basis of the input sequence. When the machine enters the special status, an indicator appears on the display screen. This is a so-called "secret" feature, in which usually the display screen gives no instructions to the player as to how to obtain an award. The award may be determined by a coded sequence arising from the order of pressing of e.g. a set of buttons.

15 In a further aspect, the feature presented on the further display screen may comprise the reproduction on the screen of a recording of actual filmed events, or an animated image. Again, a cathode ray tube-type screen is particularly well adapted to offer a feature of this entirely novel type. The reproduction of the recorded actual event might be comprised in a skill feature or in a chance feature. The feature may therefore involve so-called "virtual reality" whereby the player either

interacts, or is given the impression of interacting, with the events taking place on the screen.

In another particular aspect, in a fruit machine as defined and having a further display screen as mentioned, 5 a stored chance game feature is displayed on the further display screen intermittently over a number of fruit machine games. Further games are stored in the machine store. For a certain restricted field of outcomes of the chance game feature, one of the further stored games is 10 made available for display on the further display screen. This game may be sent to the screen automatically for display when the specified outcome of the chance game is confirmed. More preferably, selection means are provided whereby the player may choose between (1) displaying the 15 further stored game on the screen and (2) returning to the fruit machine game or continuing on the screen with the existing chance game feature.

The further stored game element may itself be a chance game, or a skill game such as a quiz or 20 dexterity/timing test.

In another aspect, the further display screen may be used to give information about the game. This might be general advice as to the operation of the machine. Additionally or alternatively, the display information 25 could be "game hints" occurring transiently as a game proceeds and making suggestions to the player relevant to the actual state of the fruit machine game. For example,

the machine might flash up a hint to "hold" a particular symbol.

In another aspect, means can be provided to display on the further display screen the value of the awards (winnings or credits) accumulated by a player, either automatically or upon request being entered by the player to display the value.

A further new proposal for the machine is making the further display screen touch-responsive. The technology for making display screens touch-responsive is generally known, but has not previously been applied to a screen presenting features of a fruit machine game. For example, a touch-responsive screen could be used for selecting the player's answer to a quiz question or the like, in a manner which is much more intuitively natural than the use of conventional button actuators which are distant from the screen and designed primarily for other purposes such as operating the fruit machine game.

In a further aspect, the further display screen displays a chance game feature of a novel type, namely a "mystery win" in which the size/existence of a win is determined by an arrangement of elements e.g. playing card faces, which is predetermined by the machine for each play of the game. Thus the player takes little or no part in determining whether or not he has won, but the elements are concealed on the screen until the player "uncovers" the relevant portion e.g. the face of a

playing card, using a prescribed actuation, to see whether or not he/she has won on that feature.

In another aspect, the screen can be used to display, from time to time, the value of a progressive
5 jackpot which may be accumulating.

A further aspect of use of the screen is related to a "trail" feature, as mentioned above. It has previously been suggested to provide a trail feature on screen (see GB-A-2192478). We also propose however to provide a
10 trail feature on the fascia of the machine and which, when a predetermined level thereon is reached, initiates the offering of a feature on the video display screen. The trail feature on the fascia preferably is patterned so that it actually leads towards the physical position
15 of the further display screen on the machine.

In a still further aspect, means may be provided in the machine for displaying on the screen status information indicating the operational condition of the machine. This information can be used for maintenance
20 and service testing.

The above description identifies features of the machine functionally. It will be understood, however, that the design of hardware and software to perform such functions is generally within the skill of the skilled
25 person in this field and does not need to be explicitly described. Means for performing the identified function are therefore described implicitly.

A specific embodiment of the present concepts is now described in some detail, with reference to the accompanying drawing which is a view of the front of a fruit machine.

5 As seen in the figure, a gaming and amusement machine of the fruit-machine type comprises an upright cabinet 1 with a display at the front. The display includes a glass fascia panel 2 with printed art work and illumination behind in a known manner. Three rotatable
10 reels 3 are mounted in the machine in a generally conventional manner, behind respective display windows 4 defining a win line 5 along which symbols 6 on the reels are aligned. A coin acceptor slot 10 for receiving
15 credits is provided at the top of the fascia, and a tray 11 for issuing payouts - in the form of coins or tokens - is provided at the front of the cabinet underneath the inclined part of the cabinet where the reels are displayed.

20 Above the reels, the fascia is interrupted by the rectangular screen 15 of a cathode ray tube.

 On the front console below the reel display, the machine has a start button 16 for initiating rolling of the reels, a respective operating button 17 for each of the reels which can be used either to move that reel
25 stepwise when a nudge feature has been made available, or to hold the position of that reel when a hold feature is available, a collect button 18 for collecting winnings,

and a "cancel" button 19 for cancelling an instruction given to the machine.

5 A set of three further buttons 20 is provided on the fascia just below the display screen 15. The functions of these are explained below.

10 Artwork on the fascia includes a "trail" consisting of a series 21 of progressively illuminable numbers from 10 to 100. The trail series is positioned above the start button 16, leading upwardly in the general direction of the display screen 15. Other conventional artwork may be included. In particular, there will usually be a table indicating the various winning combinations of reel symbols and the amounts of the corresponding awards.

15 In operation, the player inserts sufficient coins into the slot to get one or more credits. Conversion of a credit by pressing the start button sets the fruit machine reels rolling in the conventional quasi-random manner. According to the resulting arrangement of symbols along the win line, an award may or may not be won. If no award is won and no features are offered, the player must convert another credit and set the reels rolling again.

25 A minority of the fruit symbols on the reels are accompanied by numbers. These are used to operate the trail feature. For each play of the fruits, the numbers appearing along the win line are totaled and the trail

series illuminates up to the total value. Normally the total is lost after each play, but in some cases a "hold" feature enables the total to be held and added to in the subsequent play.

5 For any winning combination of symbols, the player may simply collect the amount won using the collect button. If however the trail value reaches a predetermined minimum e.g. at least 70, or the symbols combination of the win line is one of a selected few
10 high-value combinations, the machine determines this and initiates a feature routine displayed on the display screen 15.

 In this embodiment, the screened feature enables the player to "gamble" the amount won. An increased award is
15 identified on the screen. The screen also shows the face of a playing card and the player is invited to guess whether a subsequent card of the same suit will be higher or lower in value. The player enters the guess using one of the extra buttons. The second card face is then
20 shown; if the player guessed correctly the gambled amount is achieved. It can be collected if wished. However at this stage the player may also gamble further by guessing for a further card. At the same time a "REVEAL" message is shown in a corner of the screen. If the player
25 prefers to play a feature rather than gamble further, he can press the right-hand extra button causing the machine to send to the screen a selected one of a number of

stored video games. One example is a multiple-choice quiz game, of the "trivia" type in which a question is put on the screen together with three possible answers. The player selects the answer using one of the three
5 extra buttons. For a correct guess, the player is accredited with an award.

Another possible feature which can be exposed by the "REVEAL" window is a shooting game. A series of moving targets e.g. flying ducks, is depicted moving across the
10 top of the screen, as it were in the distance. A gun barrel is depicted at the bottom of the screen and the player uses the start button to time the launch of projectiles from the gun barrel at the flying targets. After all the targets have flown across, the number of
15 hits made is displayed and the award to the player adjusted accordingly.

Another possible feature is a "scratch card". An array of patches is shown on the screen, together with a cursor which can be moved using two of the extra buttons.
20 The patches "conceal" fruit machine-style symbols. The player chooses which of a specified small number of patches he elects to uncover. If the symbols uncovered are a winning combination, the winning amount is credited to the player.

25 Because the game is shown on an electronic screen and stored in video game format, the arrangement of uncoverable symbols can be different for each of a number

of showings. This makes it impossible for even an experienced player to predict which patches should be uncovered in order to win.

A further feature obtainable by this route we call "win series". When the "reveal" option is taken, the machine automatically actuates its own rotatable reels to reach a combination which is guaranteed to be a winning combination. The combination and the amount won are immediately shown on the display screen. The machine then has a 50% probability of repeating the automatic win rolling of the reels as described, or of stopping the operation of that feature so that the player must play again. In this way a player may on this feature obtain several runs on the reels, each a winning run.

A number of other possible games may be used as the "reveal" feature. One possibility is a game using edited video material of actual events, discussed further below.

After features have been played on the screen, the screen displays the total amount which the player has in credit.

When the feature has been played out, the player can collect his winnings, and go on to play another credit by rolling the fruit machine reels.

A novel characteristic of this embodiment is a self-regulating selection of the features. The different features available to the player by the "reveal" function are larger than the number of opportunities he has to

obtain such features. In the embodiment described, each successive gamble on the card game gives the player the option of a different "revealed" game. With experience, the player comes to know how many gambles he needs for his preferred revealed feature game. We construct the machine to monitor the number of times a given revealed feature is taken up. On the basis of the monitored distribution, the machine may withdraw the least popular options from availability and substitute different games. This ensures that a change of popularity of various games with time can be followed automatically by the machine, without any need for research and adjustment by service personnel.

Within the machine's cabinet are located a master control unit 25 and a slave control unit 26, a picture storage unit 27 and a video display. These are shown schematically.

The MCU displays pictures taken from the PSU onto the video display as well as controlling the reels via the SCU. It is possible to integrate the tasks performed by the SCU onto the MCU to achieve one control unit.

It should be understood that the hardware and software used for the master control, which effectively incorporates the reels game control, video display control, trail control, and video game initiating control, may in themselves be of conventional types which the skilled man can design on the basis of the proposals

herein. The actual divisions of the control functions within the master control is of course a matter of programming, and is not sensibly shown by illustration.

This machine also includes a "secret" feature. The machine is programmed to be put into "secret feature" mode whenever any one of a very few specific combination of symbols appears on the reel display. These combinations, and the existence of the "secret feature" mode, are however not indicated on the machine panel at all. When the mode is entered, however, some non-explanatory indicating sign, e.g. a light, appears on the display screen 15. An experienced player will notice this and realise that something special is happening. In this mode, the machine will respond to an ordered pressing of the hold/nudge buttons 17 by making a bonus award. The amount of the award depends on the order in which the buttons are pressed. Again, even an experienced player may take many games to understand the action required to gain a bonus payout following the indication on the display screen 15.

Such features are attractive to the experienced player.

The above description relates to the actual playing on the machine. When the machine is not being played, the control processor can revert to a more passive mode. This may nevertheless serve to attract players to the machine e.g. by displaying excerpts from the feature

games available, or other messages, on the CRT display screen of the machine.

A feature offered on the display screen may involve the use of edited video material.

5 In a first stage, original film footage is taken of relevant events. For example, film can be taken of an actual roulette table on location, until all thirty-seven possible outcomes have occurred and been recorded. The film recorded on ordinary video tape is then edited and
10 processed into separate clips, each showing a different number coming up. Once processed, the edited footage is converted from analogue tape format into digital picture format and stored e.g. on a laser disc using a laser video disc recording system.

15 The amusement machine is provided with a suitable player e.g. a laser disc player which is loaded with the digitised recorded information. When the machine is played, the main processor of the amusement machine will selectively identify and extract one of the outcomes.
20 This might be according to a pre-determined sequence to give a particular payout percentage. The information for the desired outcome would be extracted from the player, using a graphics processor, and converted into the format which can be projected onto the conventional analogue
25 monitor screen.

The above techniques are suitable for reproducing a simple game requiring only short episodes of reproduced

action. To obtain higher storage rates, the digitised picture information can be down-loaded to a computer and compressed using data compression software. This is a known technique, and can yield a compression rate of the order of 40:1. Means for de-compressing the information are then fitted into the amusement machine's own on-board processor. After decompression, the data can then be sent as before to the graphic processor and thence to the screen.

10

CLAIMS:

1. A game machine comprising
means for receiving credits;
5 a reels game system comprising a reels display
having plural reels showing reel symbols, and means for
converting a received credit to play a reels game by
initiating a change in the disposition of the reels
leading to a reels game result dependent on the changed
10 disposition of the reels;
a video game system comprising a video display
screen, a video game store, and video display means for
displaying a video game from the video game store on the
video display screen;
15 a trail system, comprising a series of sequentially
activatable elements, which can be progressively
activated, cumulatively along the series, in dependence
on the reels game result, and
video game initiating means to detect when the trail
20 is activated to a predetermined degree along the series,
and respond to that detection by initiating the display
of a said video game on the screen.
2. A game machine according to claim 1, comprising a
25 video game control for use by a player to interact in the
video game.

3. A game machine according to claim 2 in which the video game system comprises means for

displaying said video game as first and second game elements which are different from one another, the first game element comprising a display of a player choice, to be input using the video game control, and

selecting the second game element in dependence on the input choice.

4. A game machine according to claim 3 in which the player choice displayed by the first game element comprises a choice between chance-determined adjustment of an award value, and display of the second game element.

5. A game machine according to claim 3 or claim 4 in which the second game element is a player-interactive skill game element.

6. A game machine according to claim 3 or claim 4 in which the second game element is a player-interactive chance game element.

7. A game machine according to any one of claims 3 to 6 in which the video game store stores a plurality of said second game elements.

8. A game machine according to any one of the preceding claims in which the video display screen is positioned above the reels display.

5 9. A game machine according to any one of the preceding claims in which the elements of the trail system comprise respectively illuminable display segments.

10 10. A game machine according to any one of the preceding claims in which the trail system comprises means for cancelling any activated element of the trail in at least 50% of conversions of received credits.

-22-

Patents Act 1977
Examiner's report to the Comptroller under
Section 17 (The Search Report)

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(ii) Int Cl (Edition 5) G07F 17/34

Search Examiner

G NICHOLLS

Databases (see over)

(i) UK Patent Office

(iii)

Date of Search

22 FEBRUARY 1993

Documents considered relevant following a search in respect of claims 1-10

Category (see over)	Identity of document and relevant passages	Relevant to claim(s)
Y	GB 2230373 A (BELL-FRUIT) See particularly page 5 line 26 - page 6 line 13	1, 9
Y	GB 2083936 A (COIN OPERATED PARTS) Whole document	1, 2
Y	GB 2072395 A (KENNEDY) Whole document	1, 2, 8

Category	Identity of document and relevant passages	Relevant to claim(s)

Categories of documents

X: Document indicating lack of novelty or of inventive step.

Y: Document indicating lack of inventive step if combined with one or more other documents of the same category.

A: Document indicating technological background and/or state of the art.

P: Document published on or after the declared priority date but before the filing date of the present application.

E: Patent document published on or after, but with priority date earlier than, the filing date of the present application.

&: Member of the same patent family, corresponding document.

Databases: The UK Patent Office database comprises classified collections of GB, EP, WO and US patent specifications as outlined periodically in the Official Journal (Patents). The on-line databases considered for search are also listed periodically in the Official Journal (Patents).

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None

(58) Field of search
G4V

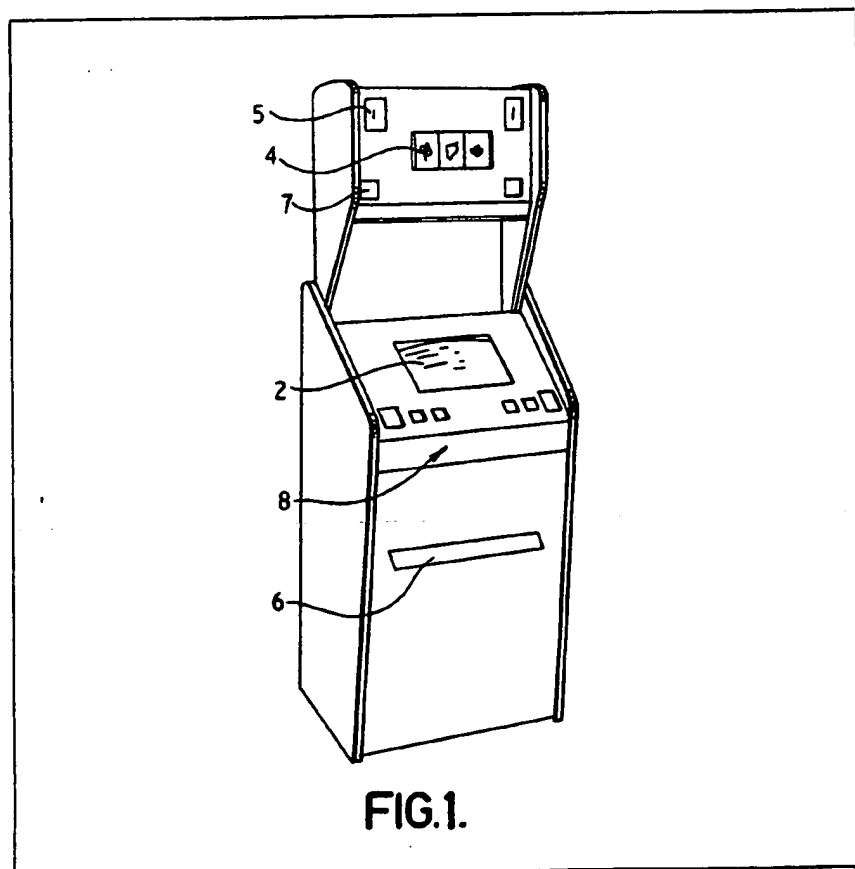
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(54) Gaming or amusement machine

(57) A gaming or amusement machine has a spinning reel device 4 and video screen 2 on which a video game may be displayed. Operation of the machine to play the video game may take place only following a winning event displayed on the reels.



The drawings originally filed were informal and the print here reproduced is taken from a later filed formal copy.

1/6

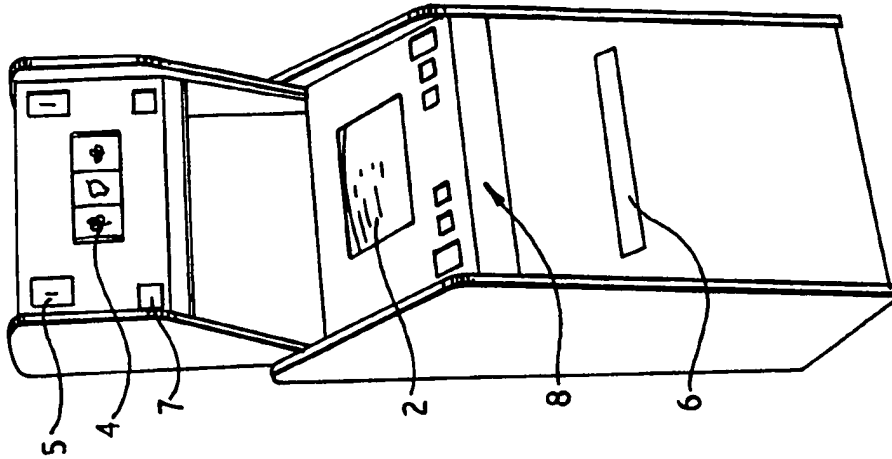
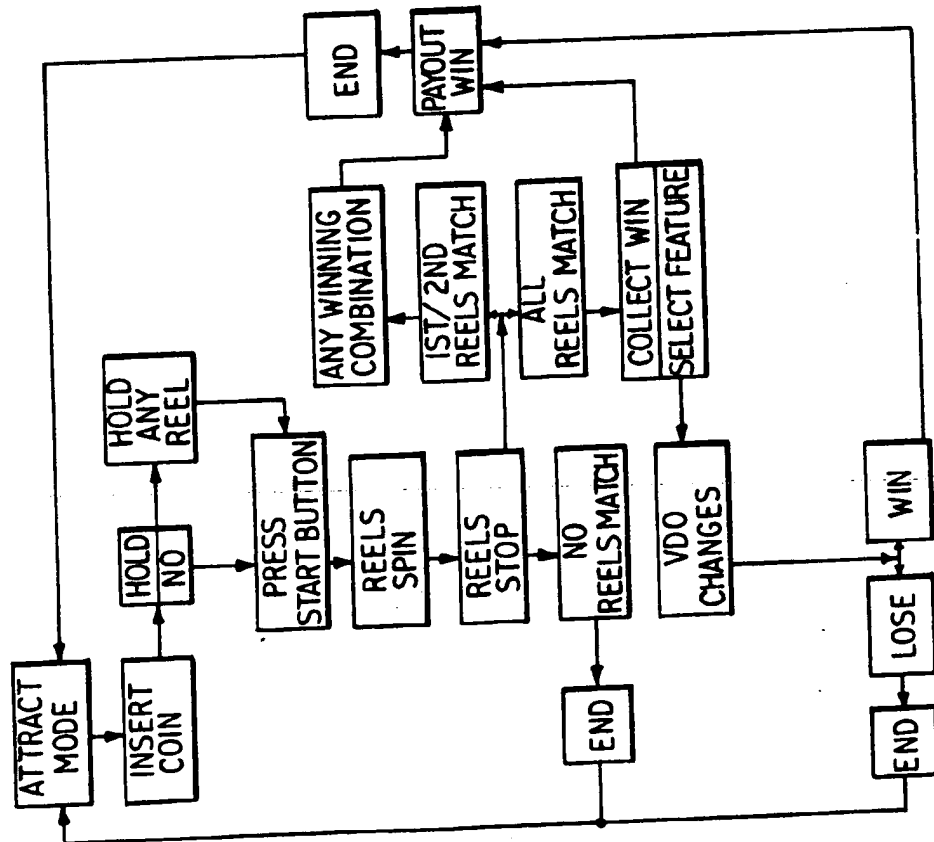


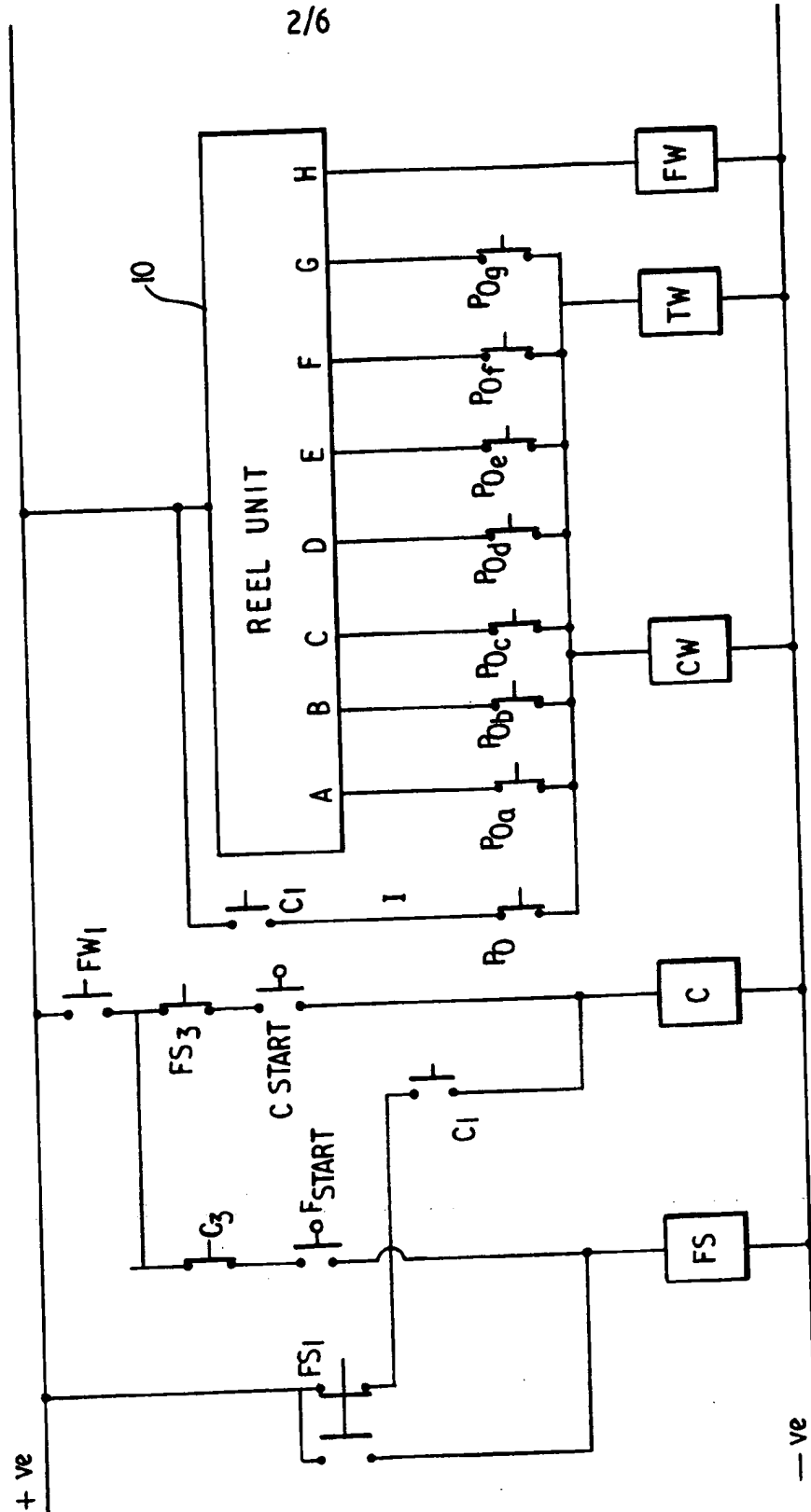
FIG. 1.

FIG. 2.



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FIG.3A.



3/6

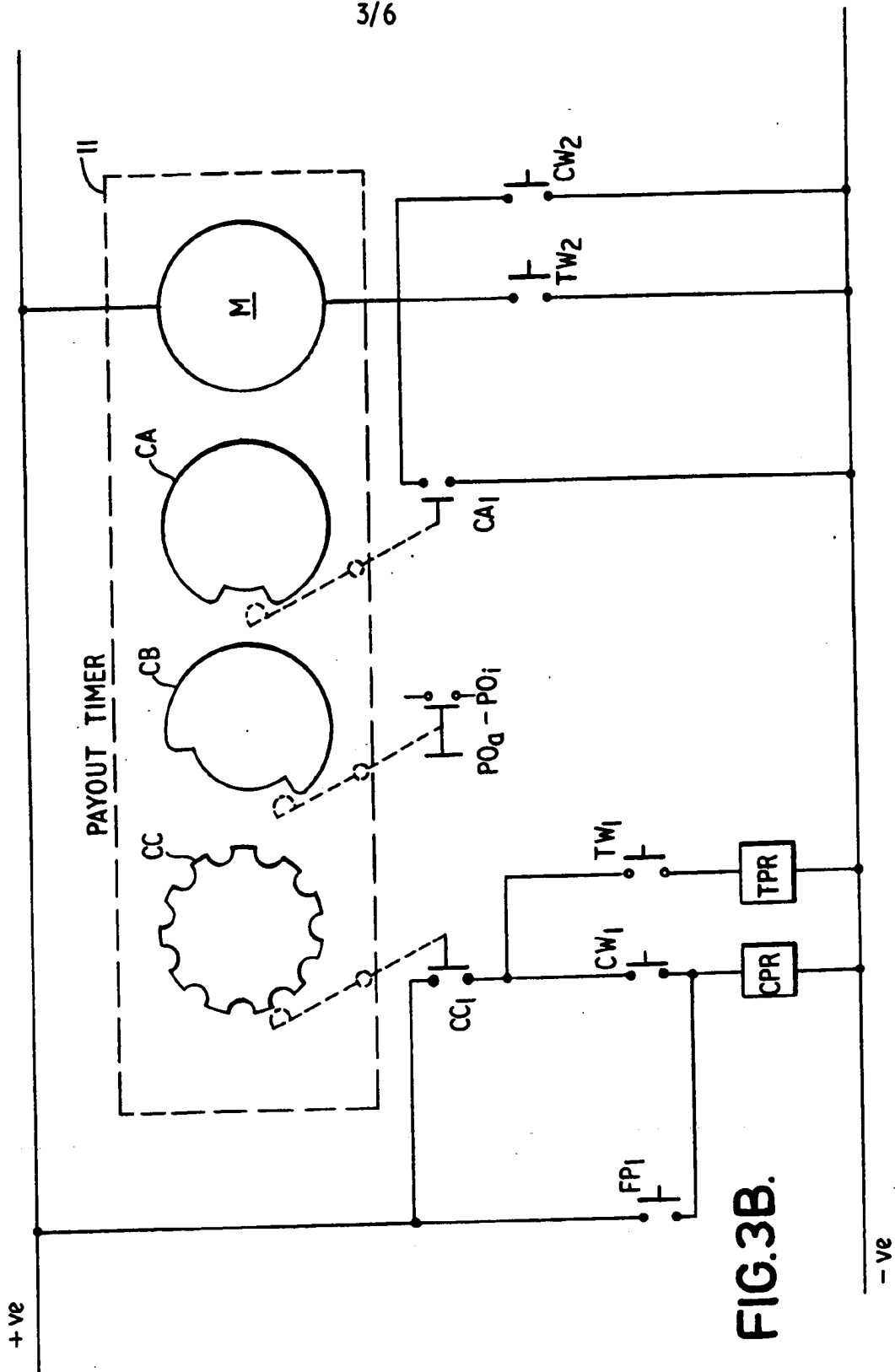


FIG. 3B.

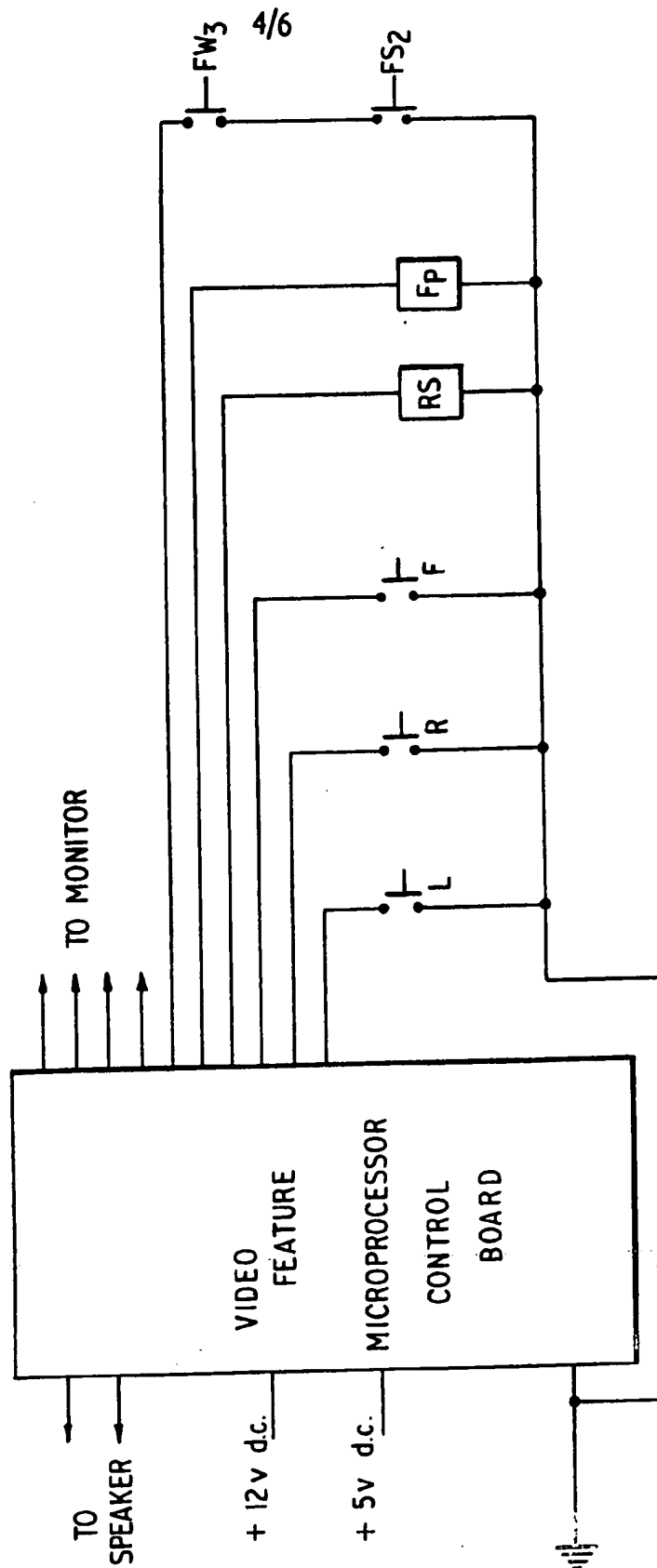


FIG.3C.

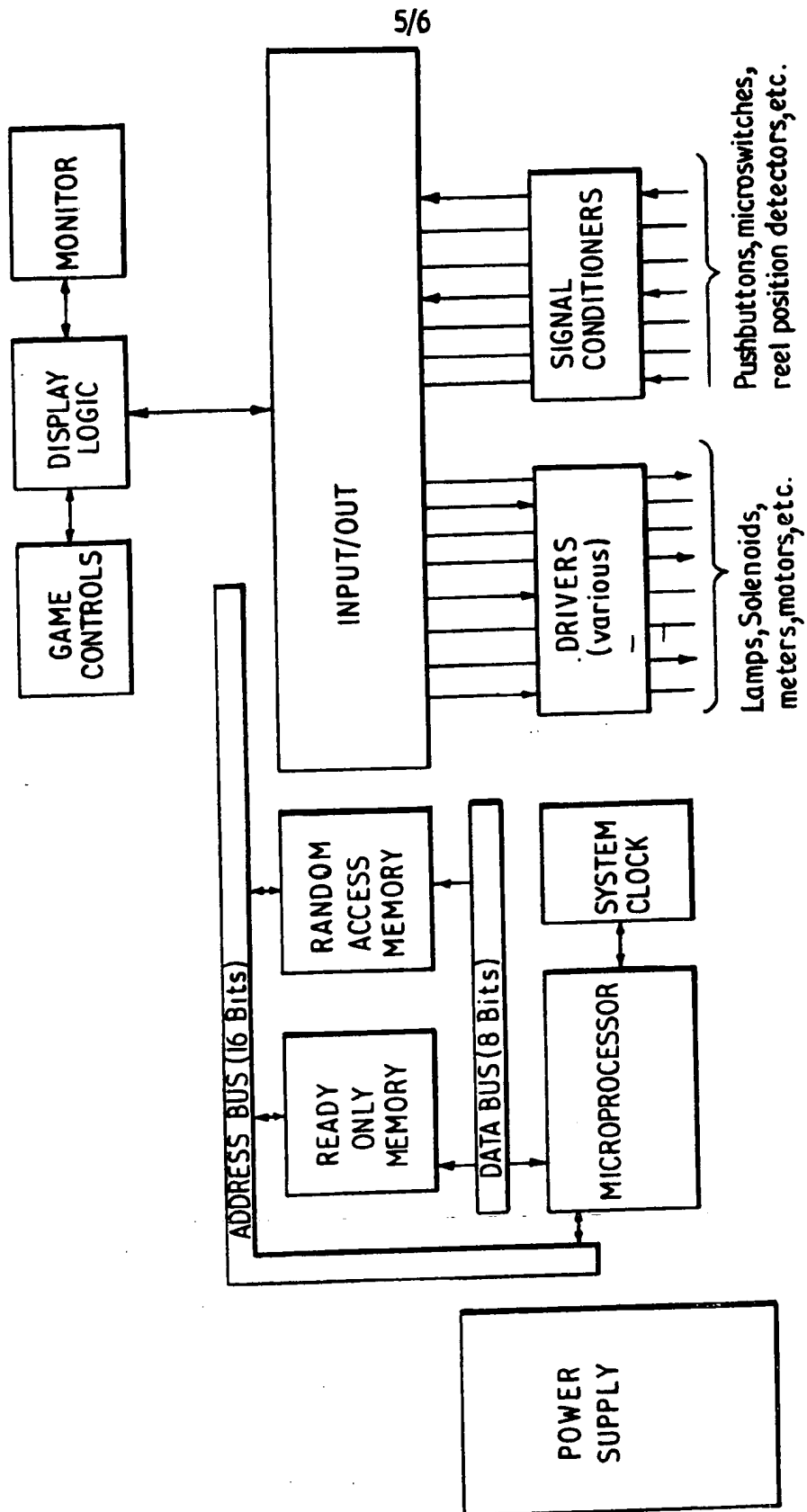


FIG. 4.

6/6

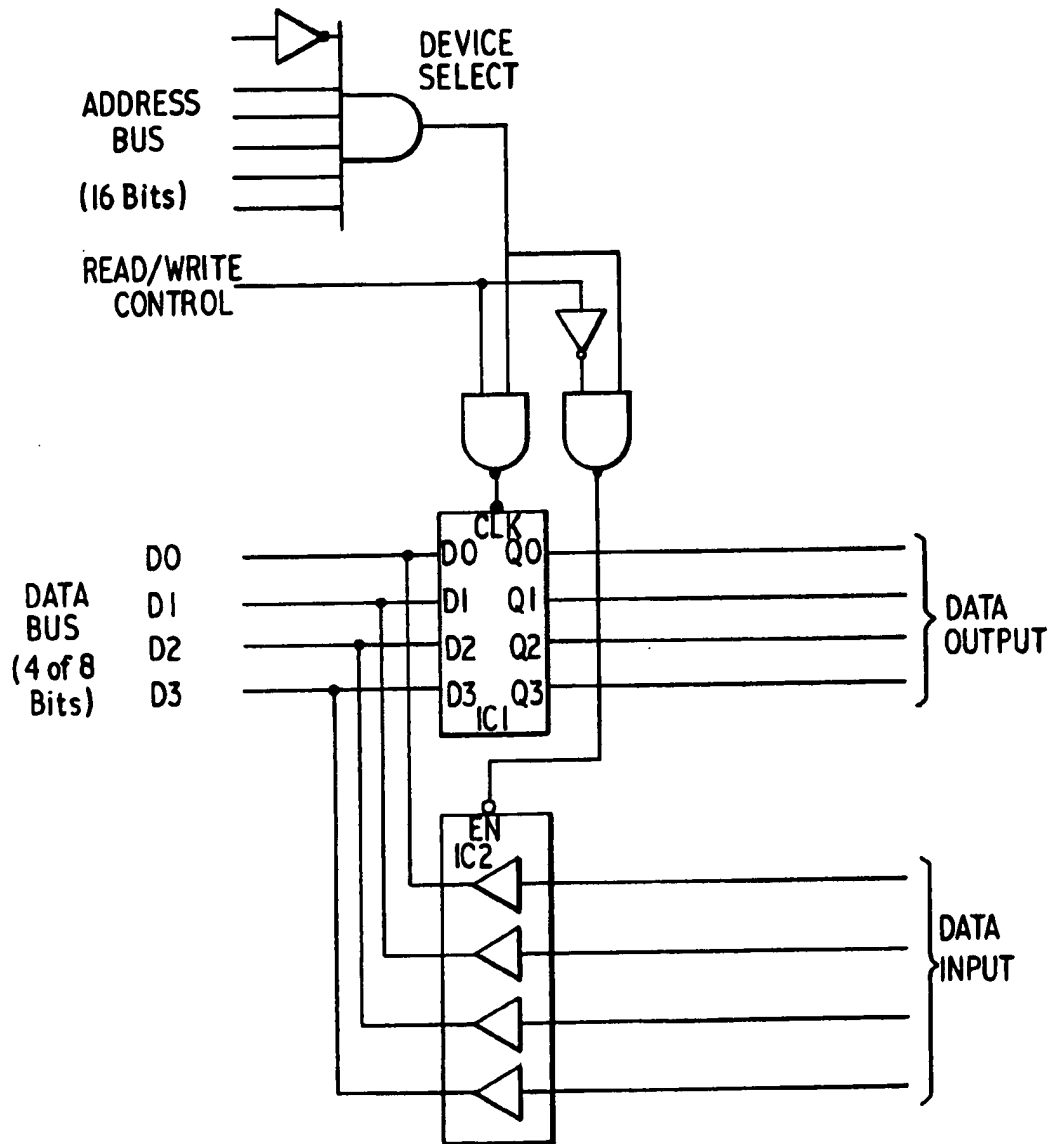


FIG.5.

SPECIFICATION

Improved gaming or amusement machine

5 A gaming or amusement machine is known which comprises a group of reels which bear symbols on their peripheral surfaces. The reels are made to spin following the insertion of a coin or token, and the relative positions of the reels when they have all been brought to a halt determines whether a winning event has occurred and, if so, the value of a prize in the form of coins or tokens delivered automatically by the machine. The amusement value of such a machine is limited.

To increase the amusement value of a gaming machine of this type, it is proposed herein that the machine should be provided with a video display unit. This unit may be constituted by, incorporate or be associated with a video game unit capable of being brought into operation only following a particular winning event on the reels, referred to herein as a feature win, the player being permitted, following a feature win, to initiate operation of the video game or, if the machine is so adapted, to forego such operation and instead draw a cash or token prize. While it is possible, within the context of the present proposal, for the video game to be played for amusement only, it is particularly envisaged that a prize in the form of one or more coins or tokens should also be obtainable following a winning event on the video game. In addition, or alternatively, the video display unit may be used to display information concerning the spinning reel game, for example, concerning the winning combinations, stake and value of prizes to be won. This video display may be readily changed, simply by replacing or reprogramming a microprocessor control unit, without the trouble or expense at present involved in replacing a complete machine as is necessary at present following, for example, changes in Government gaming regulations.

In more detail, the gaming machine now proposed may comprise a casing designed to display to the player a video screen and a set of three juxtaposed reels which are rotatable about a common axis and whose peripheries bear symbols which may be of the well-known fruit machine type. Slots are provided in the casing through which one or more coins or tokens are inserted to play the machine, and through which coins or tokens won by a player are ejected. When the machine is initially switched on, it enters an attract mode in which the screen displays information such as details of the machine site, the name of the game, instructions for playing the first part of the game, using the spinning reels, and details of the prizes available for winning events on the reels. The information displayed may change at intervals in accordance with the

programming of a microprocessor unit with which the machine is also provided. A winning event on the reels is the alignment of predetermined symbols on two or three of the reels, the winning symbols being displayed on the screen while the machine is in the initial attract mode and while the reels are in motion. There may be a number of different winning events, as is conventional with a machine of this type, the possibility being provided of winning any of a number of different sums, depending upon which symbols align with a "win line" associated with an aperture through which the reels may be viewed.

Controls are also provided for playing a video game programmed into the microprocessor unit. This unit may be programmed such that the skill of the player is used to control the position or movement of an image on the screen so that a winning event in the video game occurs if the player demonstrates sufficient skill. Alternatively, the image produced may be of a random nature, in which case the winning event may be the display of one or more predetermined images in preference to others. The arrangement may be such that the player may select the game to be played from a number of games of one or both types programmed into the microprocessor unit.

The video display unit is arranged to respond to operation of the controls only following a predetermined winning event on the reels, the player being permitted to select either the drawing of a cash or token prize following a feature win on the reels, or the opportunity to stake all or part of the value of this prize against the outcome of a video game.

Assuming that the player attracted to the machine inserts a coin or token. A "hold" lamp may now light, giving the player the opportunity to depress control buttons to hold one of the three reels. The player then presses a start button and the reels spin and stop. If no winning event is signified, the game ends and returns to its attract mode. If, say, two reels match, a payout occurs in the normal way. In the event, say, that all three reels match this winning event may be followed by the display on the video screen of the amount of the win and of instructions that the player should operate the controls to collect either a coin or token, or to stake all or part of the amount won on this first mechanical stage of the game upon a selected video game of skill or chance. Assuming that the player elects the latter, he operates the controls to select the video game and to play it. The selected game may be of a "space invaders" type, in which the controls are operated to move images on the screen, the winning event being the achievement of a score exceeding a predetermined figure, the score being increased or

reduced in dependence on the players skill in controlling the images on the screen. Following a winning event, the machine delivers a prize. Alternatively, the microprocessor may permit the video game selected to be of a type such as "pontoon". The video screen displays playing card symbols, the controls being operated by the player to determine how many such cards are displayed. Each card displayed results in the deduction of an amount from the total won on the reels and the balance is displayed on the screen too. The microprocessor unit may also be arranged to act as the dealer and to display on the screen cards dealt to itself. Assuming that the player "sticks" after staking 30p of the winnings on the reels on three cards which total 20 points while the machine scores 19 points, the player wins and receives winnings of 60p plus change left from the winnings on the reels.

It is possible to construct and arrange a machine in a number of different ways in order to achieve the operations and effect described above. Two examples will now be described with reference to the drawings, wherein:

Figure 1 shows the external features of a machine in accordance with the present proposal in a perspective view.

Figure 2 is a diagram to show the sequence of operations performed by the machine.

Figures 3a, 3b and 3c show parts of the circuitry of an electro-mechanical spinning reel type gaming machine, incorporating a video display unit, in order to indicate the inter-relationship between the reel unit and video display unit.

Figure 4 is a block diagram of a microprocessor controlled spinning reel gaming machine, incorporating a video display unit, and *Figure 5* shows an interface unit for the embodiment shown in Fig. 4.

Referring to Fig. 1, the gaming machine shown therein comprises a casing 1 apertured to reveal the screen 2 of the cathode ray tube of a video display unit and the peripheral surfaces of three reels 4 of a reel unit. The peripheral surfaces of the reels are marked with various symbols, in particular items of fruit, and the aperture through which the reels are visible is marked with a "win line". The casing has slots 5 for the insertion of coins and a tray 6 for the reception of coins and tokens delivered by the machine as prizes. Manual controls 7 are provided for operating the reels and manual controls 8 for the control of a micro-processor control unit of the video display unit. The casing also houses a loud-speaker to which signals are supplied by the microprocessor.

Within the casing, but not illustrated, the reels are mounted on a drive shaft, each reel being coupled to the shaft by way of a slip clutch to permit the reels to be halted individ-

ually while the shaft continues to rotate. The shaft is drivable by means of an electric motor, and each reel is associated with an index solenoid which, when energised, permits the reel to rotate. Provided that microswitches associated with the coin and token slots 5 have responded to the insertion of coins or tokens of sufficient value and activated the machine accordingly for an operation, energisation of the motor circuit may be effected by closing a start push-button switch. Closing this switch also energises the motor of a control cam timer which performs one complete rotation for each operation of the machine and performs overall sequence timing. This arrangement is conventional. Also conventional, and likewise not illustrated, the machine includes a cam timer, which determines by the position in which it comes to rest, whether a "hold" is available for the next operation, in other words, whether the player may hold any of the reels stationary. Provided that this timer indicates the availability of a "hold", hold relays may be energised and latched by closing push-button switches associated with the reels. Each hold relay which is energised opens a normally closed contact in the circuit of an index solenoid to prevent its energisation and spinning of the associated reel.

Fast with each reel is a disc formed with a slot for reception of a bar for holding the reel in a fixed position. As the control cam enters three successive predetermined positions, the bars of the three reels are moved into their locking position, the reels being halted in sequence in this manner until when the third and last reel is halted, the motor driving the reels is deenergised. The reel unit is represented by the box 10 shown in Fig. 3 and, in the event that the reels halt with a winning combination of symbols in alignment on the win line, the interengagement of selected studs and wipers on the reels results in the appearance of a signal on a number of outputs (A to H) from the reel unit, depending upon the prize awarded. Thus a signal on line A indicates a prize in cash of 20p, on lines B, C and D of cash prizes of 30p, 40p and 50p, respectively and on line E of a cash prize of £1. Signals on lines F and G indicate prizes of tokens valued at £1.50 and £2 respectively. A signal on line H, however, indicates a feature win, namely that the player has won the entitlement to play the video game, or to collect instead a cash prize of, say, 20p in lieu.

The dispensing of the cash and token prizes for normal wins is controlled by a payout timer indicated within the box 11 in Fig. 3b. This timer comprises a motor M for driving a cam, or set of cams, with cam tracks, indicated at CA, CB and CC for operating certain microswitches.

Returning to Fig. 3a, the output lines A to E

from the reel unit 10, are connected to a cash win relay CW, the lines F and G to a token win relay TW, and the line H to a feature win relay FW. The cash win relay CW may also be energised by a signal on a further line I which bypasses the reel unit, for a purpose which will shortly become clear. The lines A to G and I include the contacts of payout timer microswitches POa to POg and POi.

The cam track CA of payout timer 11 is associated with a contact CA1 which is closed when the cam begins to rotate and close a circuit through the payout timer motor M until the cam has rotated through one revolution, when the contact CA1 re-opens to terminate the supply to the motor. The cam track CC has a series of evenly distributed notches, the number of which is equal to the maximum cash prize in coins of a suitable value, for example, 10p pieces. During rotation of the cam a contact CC1, associated with the track CC repeatedly closes and re-opens in the circuit of cash and token payout relays CPR and TPR. The circuits of these relays also include normally open contacts CW1 and TW1, respectively, of the cash and token win relays CW and TW shown in Fig. 3. The microswitches POa and POi are all closed when the cam timer is in its start position.

The cam track CB is so arranged that the contacts POa to POe open successively one after the other at predetermined moments of time, and likewise the contacts POf and POg in accordance with a separate sequence. The contact POi is arranged to open at the same time as one of the contacts POa to POe, depending upon the value of the prize to be given in lieu of the entitlement to play a video game.

Each of the relays CW and TW has a normally closed contact in the circuit of the control cam motor (not shown) so that the control cam is halted when a win signal appears on one of the output lines A to G. Each relay also has a normally open contact CW2, TW2 respectively in further circuits for energising the payout cam timer motor M.

Assuming a normal cash win, i.e. not a feature win, a signal appears on one of the output lines A to E. The payout timer is stationary in its start position so that contacts POa to POe are closed. Relay CW is energised and contact CW1 in the circuit of the cash payout relay CPR and CW2 in the circuit of the motor M are closed. The motor is energised and starts to rotate the timer cam or cams. Contact CA1 closes to maintain the supply to the motor despite subsequent opening of contact CW2. Contact CC1 repeatedly closes causing a series of pulses to be supplied to the cash payout relay CPR, a contact of which responds to operate the solenoid of a meter which delivers a 10p coin in response to each pulse which it receives. The cash payout relay is energised each time that the

contact CC1 closes but only so long as the relay CW remains energised and contact CW1 is closed.

Simultaneously, the cam track CB causes the contacts POa to POe to open one after another, the opening of these contacts being synchronised with the operation of the contact CC1. Thus, contact POa opens after contact CC1 has closed twice, contact POb after contact CC1 has closed three times and so on, to de-energise relay CW and prevent the delivery of further coins.

If a token win is indicated by a signal on output line F or G, a meter is operated to deliver the correct number of tokens in exactly the same way as a result of the energisation of relay TW and closing of contacts TW1 and TW2.

In the event however that the symbols aligned with the win line indicate a feature win, a signal appears on the output line H from the reel unit to energise the feature win relay FW. A first normally open contact (not shown) of this relay closes to illuminate a lamp indicating the feature win and informing the player that he may choose between collecting a cash prize or playing the video game. Contact FW1 closes in the circuit of a collect relay C and a feature start relay FS. If the player elects to take a fixed sum, he closes a switch C_{START} in the circuit of the relay C with the result that contact C1 of this relay closes in line I to energise the cash win relay CW (which has remained un-energised because of the absence of any signal on lines A to E) and initiate operation of the payout cam timer to deliver a prize having a value determined by the length of the part of the cam track CB associated with contact POi, in the manner described above. At the same time, contact C2 of relay C opens in the circuit of feature start relay FS to prevent use of the video unit. Contact FS1 remains in the position shown so that the relay C is latched following closing of a self-holding contact C3. Should, however, the player choose to play the video game, he closes instead switch F_{START} so resulting in de-energising of relay FS since contact C2 remains closed. Contact FS1 picks-up and relay FS latches.

Referring now to Fig. 3c, the microprocessor control board of the video display unit has a circuit including contacts FS2 and FW3 of the feature win and feature start relays. Following energisation of both relays, these contacts close, signalling the microprocessor to change mode. Accordingly, the attract mode (or a mode entered when the machine was brought into use) is ended, and a game programme contained in the microprocessor is brought into use. The programme may include the display of information on the screen as to the way of playing the video game, before entering a playing mode in which manually controlled switches L, R and F used by

the player to move an image displayed on the screen to the left and to the right, and to fire images representing projectiles.

Because contact FS3 opens in the circuit of the collect relay C, contact C1 opens in line I and relay CW remains de-energised.

The construction of the microprocessor control unit and its incorporation in the video display unit and connection to a loudspeaker as indicated in Fig. 3c, together with its programming, is well-known to those skilled in the art and will not be described further herein. In the event that the player wins the video game in accordance with whatever rules are included in the programme, a relay FP in Fig. 3c is energised and closes a contact FP1 in the circuit of the cash payout relay CPR shown in Fig. 3b to cause a cash prize to be dispensed without involving the payout timer.

The circuits associated with the microprocessor control unit may be readily modified to cause changes in presentation on the screen in response to energisation of the relays CW, CT and FW so that the fact of cash, token or feature wins is indicated visually on the screen.

Following the completion of a full sequence of operation on the machine, the control timer is returned to its start position as a result of a signal produced by closing of a further contact (not shown) of the collect relay C or the return of the payout timer to its home position, or the closing of a contact of a reset relay RS in the circuit of the video feature control board. Just before the control timer reaches its start position, all latched relays are released, and the machine re-enters the attract mode.

Of course, a practical construction of the machine requires circuits and components further to those described and illustrated for the purpose of explaining the inter-relationship between the reel and the video unit. These further circuits and components will be familiar to those skilled in the mechanical and video gaming machine arts.

The sequence of operations is illustrated in Fig. 2, wherein it is assumed that the matching of symbols on the first and second reels leads to a normal cash or token win, while the matching of all reels leads to a feature win.

The electro-mechanical game unit may be controlled by a microprocessor control unit of a type conventionally available which is re-programmed to give additional input and output controls as shown in Fig. 4, which is a block diagram showing the basic machine controller, together with the display logic from an input/output (I/O) circuitry.

Most microprocessor controllers have spare input and output capabilities and this may be used for communication with the display logic as indicated. If, however, no spare capacity exists it is necessary to extend the input/output as follows.

An unused device address is selected and

used to control an interface with latched output, these being offered to the data input through a similar unit on the display logic. A circuit diagram of the unit including a quad latch IC1 and three state buffer IC2 is shown in Fig. 5. The data received back is strobed onto the data bus when the read/write control line is low and the correct device address is present on the address bus. Therefore, data is input and output in a similar manner to storing and retrieving data from a memory location.

In use, the microprocessor controls the game functions according to the data stored in its permanent memory, performing electronically the tasks described above in relation to electro-mechanical controllers. However, when a feature win is detected and the player elects to play the video game, a signal is output to the video logic, this being in the form of setting one of, for example, four data bits. The display which will be in its attract mode will frequently sample these data lines and when the appropriate bit is set, will commence the video game. At the conclusion of the game, information as to the amount to be paid out will be written on the video's quad output latch. This will be detected by the gaming controls, whilst the video game was being played, would continually sample its input interface to await the arrival of payout information. The appropriate prize is then output and when complete the gaming control writes zeros into its four bit latch as an acknowledgement that payment is complete and will revert to its normal function. The video logic should now detect the absence of the initializing and write zeros into its output register, after which it reverts to the attract mode, the sequence being complete.

A single microprocessor control unit may be used to combine both the spinning reel and video logic into one unit as only one function is required at a time.

Although as described herein the reels rotate about a common axis in conventional fruit machine manner, and have the symbols of the peripheral surfaces of the reels, it will be appreciated that it is possible for the reels to be replaced by discs, for example, which rotate about respective parallel axes.

CLAIMS

1. A gaming or amusement machine including a plurality of rotatable reels bearing indicia, a drive mechanism for setting the reels in motion, a video means including electronic means for generating a signal, and a video display screen on which the signal is displayed as an image, the electronic means being adapted to permit a video game to be played wherein the operation of the video means to play a video game is permitted to take place only following halting of the reels in a predetermined winning relationship.

2. A gaming or amusement machine including a plurality of rotatable reels bearing indicia, a drive mechanism for setting the reels in motion, actuation of the drive mechanism being caused or permitted by a coin or token-freed device, a video game unit including electronic means for generating a signal and a video display screen on which the signal is displayed as an image, the electronic means being controllable either by the player or operating at least partially at random, and a mechanism for releasing to the player at least one coin or token following the display on the screen of a predetermined image; wherein initiation of the operation of the video game unit or of the coin or token release mechanism is permitted to take place only following halting of the reels in a predetermined winning relationship.

3. A machine as claimed in claim 2, including means operable following halting of the reels in a predetermined winning relationship to selectively initiate operation of the video game unit or of the coin or token release mechanism.

4. A machine as claimed in claim 3, including means for displaying the amount of the player's winnings following halting of the reels in a predetermined winning relationship, means for permitting the player to stake all or part of this amount on the outcome of a game played on the video game unit, the display of said amount being reduced by the amount of the stake.

5. A gaming or amusement machine including a plurality of rotatable reels which bear indicia on their peripheral surfaces, a drive mechanism for setting the reels in motion, actuation of the drive mechanism being caused or permitted by a coin or token-freed device, a mechanism for releasing to the player at least one coin or token following halting of the reels in a predetermined winning relationship, an electronic unit for generating a signal and a video display screen on which the signal is displayed as an image indicative of the winning combination of indicia on the reels, the electronic unit being reprogrammable to vary the display.

6. A gaming or amusement machine including a plurality of rotatable reels bearing indicia, a drive mechanism for setting the reels in motion, actuation of the drive mechanism being caused or permitted by a coin or token-freed device, a mechanism for releasing to the player at least one coin or token following halting of the reels in a predetermined winning relationship, a video display screen, and an electronic unit for generating a signal which is displayed as an image on the screen indicative of information concerning the game to be played on the machine, the electronic unit being reprogrammable to vary the display.

7. A gaming or amusement machine sub-

stantially as hereinbefore described with reference to the accompanying drawing.

CLAIMS (10 Jun 1981)

2. A gaming or amusement machine including a plurality of rotatable reels bearing indicia, a drive mechanism for setting the reels in motion, actuation of the drive mechanism being caused or permitted by a coin or token-freed device, electronic means for generating a signal and a video display screen on which the signal is displayed as an image, the electronic means being controllable either by the player or operating at least partially at random, thereby to permit the playing of a video game, and a mechanism for releasing to the player at least one coin or token following the display on the screen of a predetermined image; wherein operation of the electronic means to permit the playing of a video game or of the coin or token release mechanism is permitted to take place only following halting of the reels in a predetermined winning relationship.

3. A machine as claimed in claim 2, including means operable following halting of the reels in a predetermined winning relationship to selectively initiate operation of the electronic means to permit the playing of a video game or of the coin or token release mechanism.

4. A machine as claimed in claim 3, including means for displaying the amount of the player's winnings following halting of the reels in a predetermined winning relationship, means for permitting the player to stake all or part of this amount on the outcome of a video game, the display of said amount being reduced by the amount of the stake.

5. A machine as claimed in any of claims 2 to 4, wherein electronic means controls the functions of the reels and other mechanisms of the machine.

6. A machine as claimed in any preceding claim, wherein the electronic means is adapted during an attract mode to generate a signal for causing the screen to display information, said means being reprogrammable to vary the information displayed.

7. A machine substantially as hereinbefore described with reference to Figs. 1 to 3a, 3b and 3c, or Figs. 4 and 5 of the drawings.

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